

## **REMARKS/ARGUMENTS**

### **Claim Objections**

The present application includes pending claims 1-40. The Office Action Summary indicates that claims 1-12, 14-25, 27-28 and 40 are rejected. The Office Action Summary further indicates that claims 13, 26, and 39 are objected to. However, the Detailed Action indicates that all of claims 1-40 have been rejected, and no claims are objected to. The Examiner clarified this by pointing out on October 10, 2006 that the Office Action Summary is in error, that all claims 1-40 are rejected, and that no claim is objected to.

### **Claim Rejections**

The present application includes pending claims 1-40, all of which have been rejected. The claim 36 is as originally claimed. The claims 1, 2, 4, 6-12, 14, 15, 17, 19-25, 27, 28, 30, 32-35, 37, 38, and 40 have been amended, as set forth above, to further clarify the language used in these claims and to further prosecution of the present application. The claims 3, 5, 13, 16, 18, 26, 29, 31, and 39 have been cancelled without prejudice. The Applicant respectfully submits that the claims define patentable subject matter.

Initially, the Applicant notes that a goal of patent examination is to provide a prompt and complete examination of a patent application:

It is essential that patent applicants obtain a prompt yet complete examination of their applications. Under the principles of compact prosecution, each claim should be reviewed for compliance with every statutory requirement for patentability in the *initial review* of the application, even if one or more claims are found to be deficient with respect to some statutory requirement. Thus, Office personnel *should* state *all* reasons and bases for rejecting claims in the *first* Office action. Deficiencies should be explained clearly, particularly when they serve as a basis for a rejection. Whenever practicable, Office personnel should indicate how rejections may be overcome and how problems may be resolved. A failure to follow this approach can lead to unnecessary delays in the prosecution of the application.

Manual of Patent Examining Procedure (MPEP) § 2106(II). As such, the applicant assumes, based on the goals of patent examination noted above, that the present Office Action has set forth "all reasons and bases" for rejecting the claims.

The claims 1-8, 27-34 have been rejected under 35 U.S.C § 102(e) as being anticipated by Kang et al. (US 6,498,927B2) (hereinafter "Kang").

The claims 9-11, 35-37 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Brobston et al. (US 7,031,409B2) (hereinafter "Brobston").

The claims 12 and 38 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima et al. (US 2004/0,229,586A1) (hereinafter "Oshima-586").

The claims 13 and 39 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Khorramabadi (US 5,864,310) (hereinafter "Khorramabadi").

The claims 14, 16-21 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima et al. (US 2003/0,218,501A1) (hereinafter "Oshima-501").

The claim 26 has been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima-501 as applied to claim 14, and further in view of Khorramabadi.

The claim 15 has been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima-501 as applied to claim 14, and further in view of Loper (US 5,095,536) (hereinafter "Loper").

The claim 22-24 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima-501 as applied to claim 18, and further in view of Brobston.

The claim 25 has been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima-501 as applied to claim 14, and further in view of Oshima-586.

The claim 40 has been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Katsura et al. (US 6,373,907 B1) (hereinafter "Katsura") and Sullivan (US 5,451,955) (hereinafter "Sullivan").

The Applicant respectfully traverses these rejections and request reconsideration of the claims at least for the reasons previously set forth during prosecution and in view of the following remarks:

#### **Claim Rejections under 35 U.S.C. § 102(e)**

With regard to the anticipation rejections under 35 U.S.C. § 102, MPEP 2131 states that "[a] claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 2 USPQ2d 1051, 1053 (Fed.Cir. 1987). MPEP 2131 also states that "[t]he identical invention must be shown in as complete detail as is contained in the ... claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

#### **1. Rejection of claims 1-8, 27-34 under 35 U.S.C. § 102(e)**

The claims 1-8, 27-34 have been rejected under 35 U.S.C § 102(e) as being anticipated by Kang. The claims 1 and 27 are independent claims from which the claims 2-8 and 28-34 depend, respectively. The claims 1, 2, 4, 6-8, 27, 28, 30, 32, and 33 have been amended. The claims 3, 5, 29 and 31 have been cancelled without prejudice.

Kang does not anticipate all elements of claim 1 as amended because it does not teach, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" and "computing a power of said received signal based on said plurality of corresponding digital signals" as stated in the amended independent claim 1. Kang does not anticipate all elements of claim 27 as amended because it does not teach, for example, "a plurality

of analog-to-digital converters that convert at least two of said generated plurality of upstream analog signals for a channel to a plurality of digital signals" and "at least one processor that computes power of said received signal based on said digital signals" as stated in the amended independent claim 27. Rather, Kang teaches monitoring power for a channel using digital signals from a single ADC 876 and a plurality of analog signals from the power detectors 820, 840, 856, and 868. Figure 8; Column 8, lines 5-17, 21-25; column 9, lines 7-12, 60-62.

Since Kang does not teach all the elements of the independent claims 1 and 27, and therefore cannot anticipate under 35 U.S.C. § 102(e), the Applicant respectfully requests that these claims be allowed. Additionally, since the claims 2, 4 and 6-8 depend from the claim 1, and the claims 28, 30, and 32-34 depend from the claim 27, the Applicant respectfully requests that that these claims also be allowed.

#### **Claim Rejections under 35 U.S.C. § 103(a)**

With regard to an obviousness rejection, MPEP 2142 states that in order for a *prima facie* case of obviousness to be established, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Further, MPEP 2143.01 states that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination," and that "although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a *suggestion or motivation in the reference* to do so'" (citing *In re Mills*, 916 F.2d 680, 16 USPQ 2d 1430 (Fed. Cir. 1990)). Moreover, MPEP 2143.01 also states that the level of ordinary skill in the art cannot be relied upon to provide the suggestion..., citing *AI-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ 2d 1161 (Fed. Cir. 1999).

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First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Further, MPEP 2143.01 states that "the mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art suggests the desirability of the combination," and that "although a prior art device 'may be capable of being modified to run the way the apparatus is claimed, there must be a *suggestion or motivation in the reference* to do so'" (citing *In re Mills*, 916 F.2d 680, 16 USPQ 2d 1430 (Fed. Cir. 1990)). Moreover, MPEP 2143.01 also states that the level of ordinary skill in the art cannot be relied upon to provide the suggestion..., citing *AI-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 USPQ 2d 1161 (Fed. Cir. 1999).

## **2. Rejection of claims 9-11, 35-37 under 35 U.S.C. § 103(a)**

The claims 9-11, 35-37 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Brobston et al. (US 7,031,409B2) (hereinafter "Brobston"). The claims 9-11 depend from the claim 1, and the claims 35-37 depend from the claim 27. The Applicant respectfully submits that Kang and Brobston do not teach all the elements of the claims 1 and 27. Therefore, Kang and Brobston cannot teach all the elements of the claims 9-11 and 35-37.

As discussed above with respect to the 102(e) rejection, Kang does not teach all elements of amended claims 1 and 27. The Applicant further submits that Brobston does not teach all elements of the amended claims 1 and 27. The Applicant was not able to find in Brobston any discussion of, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" or "computing a power of said received signal based on said plurality of corresponding digital signals" as stated in the amended claim 1. Nor was the Applicant able to find in Brobston any discussion of, for example, "a plurality of analog-to-digital converters that convert at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital

signals” or “at least one processor that computes power of said received signal based on said plurality of corresponding digital signals” as stated in the amended claim 27.

The Applicant further submits that the references Kang and Brobston teach away from each other, therefore, there is no motivation to combine the references. For example, while Brobston teaches a full digital AGC circuit, Kang incorporates analog circuitry for AGC for received signals. Brobston states that the “automatic gain control (AGC) circuit is implemented entirely in digital circuitry.” Column 3, lines 1-2. However, Kang describes analog circuitry for operation in controlling gain of the received signal in the preferred embodiment of the invention shown in FIG. 8. FIG. 8 describes the power detectors (PDs) 820, 840, 856, 868 that receive analog signals from the low noise amplifier (LNA) 810, the variable gain amplifiers (VGAs) 830, 846, and 862, respectively. Kang, column 8, lines 1-13. The gain controller 828 then receives signals from the PDs 820, 840, 856, 868, and the gain controller 828 outputs control signals to the LNA 810, and the VGAs 830, 846, and 862. Kang, column 8, lines 20-28.

Additionally, the Applicant respectfully submits that Kang’s teaching makes Brobston unsatisfactory for its intended use, and, therefore, there is no motivation to combine. For example, as cited above, Kang generates analog power levels. However, Brobston teaches a full digital AGC circuit. Column 3, lines 1-2. In order to use the analog power detectors taught by Kang, Brobston would have to modify the desired fully digital AGC circuit to partially analog AGC circuit. Since the modified Brobston design would no longer be fully digital, the modified Brobston design would no longer be satisfactory for its intended use as a fully digital design.

Therefore, the Applicant respectfully submits that, at least for the reasons stated above, Kang and Brobston do not teach all the elements of the claims 9-11 and 35-37. Furthermore, the Applicant respectfully submits that, at least for the reasons stated above, there is no motivation to combine teachings of the all-digital circuit of Brobston with the teachings of the partially analog circuit of Kang. Accordingly, at least for the reasons stated above, the Applicant respectfully requests that the claims 9-11 and 35-37 be allowed.

### **3. Rejection of claims 12 and 38 under 35 U.S.C. § 103(a)**

The claims 12 and 38 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima et al. (US 2004/0,229,586A1) (hereinafter "Oshima-586"). The claim 12 depends from the claim 1, and the claim 38 depends from the claim 27. The Applicant respectfully submits that Kang and Oshima-586 do not teach all the elements of the claims 1 and 27. Therefore, Kang and Oshima-586 cannot teach all the elements of the claims 12 and 38.

As discussed above with respect to the 102(e) rejection, Kang does not teach all elements of amended claims 1 and 27. The Applicant further submits that Oshima-586 does not teach all elements of the amended claims 1 and 27. The Applicant was not able to find in Oshima-586 any discussion of, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" or "computing a power of said received signal based on said plurality of corresponding digital signals" as stated in the amended claim 1. Nor was the Applicant able to find in Oshima-586 any discussion of, for example, "a plurality of analog-to-digital converters that convert at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" or "at least one processor that computes power of said received signal based on said digital signals" as stated in the amended claim 27.

The Applicant further traverses the rejection of the claims 12 and 38 based on the Office Action statement that Oshima-586 "teaches applying the final gain to said received signal." The Applicant respectfully points out that the "final gain" in Oshima-586 is used to refer to a "final gain code" on the left-hand side of an equation to differentiate it from a "gain code" on the right-hand side of the equation. Paragraph 61. However, the amended claims 12 and 38 state "applying a final gain to said received signal, wherein said final gain is applied after processing signals upon which intermediate gain has been applied" and "said automatic gain controller applies a final gain to said received signal, wherein said final gain is applied after processing signals upon which intermediate gain has been applied," respectively. Accordingly, Oshima-586 does not teach applying a final gain after an intermediate gain has been applied. Rather, Oshima-586 applies a gain that happens to be called the "final gain."

Therefore, the Applicant respectfully submits that, for at least the reasons stated above, Kang and Oshima-586 do not teach all the elements of the claims 12 and 38. Accordingly, at least for the reasons stated above, the Applicant respectfully requests that the claims 12 and 38 be allowed.

**4. Rejection of claims 13 and 39 under 35 U.S.C. § 103(a)**

The claims 13 and 39 have been cancelled without prejudice.

**5. Rejection of claims 14, 16-21 under 35 U.S.C. § 103(a)**

The claims 14, 16-21 have been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima et al. (US 2003/0,218,501A1) (hereinafter "Oshima-501"). The claims 16 and 18 have been cancelled without prejudice. The claim 14 is an independent claim, and the claims 17 and 19-21 are dependent on the claim 14. The Applicant respectfully submits that Kang and Oshima-501 do not teach all the elements of the claim 14. Therefore, Kang and Oshima-501 cannot teach all the elements of the claims 17 and 19-21.

Kang does not anticipate all elements of claim 14 as amended because it does not teach, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" and "computing a power of said received signal based on said plurality of corresponding digital signals" as stated in the amended independent claim 14. Rather, Kang teaches monitoring power for a channel using digital signals from a single ADC 876 and a plurality of analog signals from the power detectors 820, 840, 856, and 868. Figure 8; Column 8, lines 5-17, 21-25; column 9, lines 7-12, 60-62. The Applicant further submits that Oshima-501 does not teach all elements of the amended claim 14. The Applicant was not able to find in Oshima-501 any discussion of, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" or "computing a power of said received signal based on said plurality of corresponding digital signals" as in claim 14.

Therefore, the Applicant respectfully submits that, for at least the reasons stated above, Kang and Oshima-501 do not teach all the elements of the independent claim 14, and hence Kang and Oshima-501 do not teach all the elements of the claims 17 and



19-21. Accordingly, at least for the reasons stated above, the Applicant respectfully requests that the claims 14, 17, and 19-21 be allowed.

**6. Rejection of claims 26 under 35 U.S.C. § 103(a)**

The claim 26 has been cancelled without prejudice.

**7. Rejection of claims 15 under 35 U.S.C. § 103(a)**

The claim 15 has been rejected under 35 U.S.C. § 103(a) as being as being unpatentable over Kang in view of Oshima-501 as applied to claim 14, and further in view of Loper (US 5,095,536) (hereinafter "Loper"). The claim 15 depends from the claim 14. The Applicant submits that Loper does not teach all elements of the amended claim 14. The Applicant was not able to find in Loper any discussion of, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" and "computing a power of said received signal based on said plurality of corresponding digital signals" as stated in the amended independent claim 14. The Applicant contends above that Kang and Oshima-501 do not teach these elements of the claim 14. Accordingly, Kang, Oshima-501, and Loper cannot teach all the elements of claim 15. Therefore, at least for the reasons stated above, the Applicant respectfully requests that the claim 15 be allowed.

**8. Rejection of claims 22-24 under 35 U.S.C. § 103(a)**

The claim 22-24 have been rejected under 35 U.S.C. § 103(a) as being as being unpatentable over Kang in view of Oshima-501 as applied to claim 18, and further in view of Brobston. The claims 22-24 depend from the claim 14. The Applicant submits that Brobston does not teach all elements of the amended claim 14. The Applicant was not able to find in Loper any discussion of, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to a plurality of corresponding digital signals" and "computing a power of said received signal based on said plurality of corresponding digital signals" as stated in the amended independent claim 14. The Applicant contends above that Kang and Oshima-501 do not teach these same elements of the claim 14. Accordingly, Kang, Oshima-501, and Brobston cannot

teach all the elements of the claims 22-24. Therefore, at least for the reasons stated above, the Applicant respectfully requests that the claims 22-24 be allowed.

#### **9. Rejection of claims 25 under 35 U.S.C. § 103(a)**

The claim 25 has been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Kang in view of Oshima-501 as applied to claim 14, and further in view of Oshima-586. The claim 25 depends from the claim 14. The Applicant submits that Oshima-586 does not teach all elements of the amended claim 14. The Applicant was not able to find in Oshima-586 any discussion of, for example, "converting at least two of said generated plurality of upstream narrowband analog signals for a channel to digital signals" and "computing a power of said received signal based on said digital signals" as stated in the amended independent claim 14. The Applicant contends above that Kang and Oshima-501 do not teach these elements of the claim 14. Accordingly, Kang, Oshima-501, and Oshima-586 cannot teach all the elements of the claims 25. Therefore, at least for the reasons stated above, the Applicant respectfully requests that claim 25 be allowed.

#### **10. Rejection of claims 40 under 35 U.S.C. § 103(a)**

The claim 40 has been rejected under 35 U.S.C § 103(a) as being as being unpatentable over Katsura et al. (US 6,373,907 B1) (hereinafter "Katsura") and Sullivan (US 5,451,955) (hereinafter "Sullivan"). The Applicant respectfully submits that Kang, Katsura, and Sullivan do not teach all the elements of claim 40 as amended. For example, Kang does not teach "a low pass filter **directly electrically** coupled to said mixer." Rather, Kang teaches "an output 826 of the mixer 816 is received by the voltage gain amplifier (VGA) 830. An output of the VGA 830 is received by ... a BB filter 836." Column 8, lines 4-7. Similarly, Katsura also teaches an amplifier between a mixer and a filter. FIGs. 1-5; column 1, lines 45-58. Sullivan does not disclose use of a filter or a mixer.

Furthermore, Kang, Katsura, and Sullivan do not teach "an input of a first of said plurality of analog-to-digital converters is **directly electrically** coupled to said output of said low pass filter," as stated in the amended claim 40. The Office Action concedes that Kang "fails to teach the first of said plurality of analog-to-digital converters ADC is

coupled to said output of said low pass filter." Page 12. The Office Action states that the first ADC 12 in FIG. 2 of Katsura is coupled to the low pass filter (LPF) 7. However, Katsura does not teach the first ADC 12 directly electrically coupled to an output of the LPF 7. In FIGs. 2-4 of Katsura, the ADC 12 is coupled to the LPF 7 via the logarithmic amplifier 11. FIG. 5 in Katsura discloses a first ADC 35 coupled to the LPF 413 via the logarithmic amplifier 417. Sullivan does not teach use of a filter.

Additionally, Kang, Katsura, and Sullivan do not teach "a plurality of analog to digital converters ADC; an input of each remaining portion of said ADC converters is individually **directly electrically** coupled to a corresponding output of each serially coupled gain controllers," as stated in part in the amended claim 40. The Office Action concedes that Kang and Katsura do not teach this. Page 13. Sullivan discloses a plurality of ADC, however they are not directly electrically coupled to a corresponding outputs of the gain controllers. Rather, they are coupled via the directional couplers 22, the diode detectors 24, and the amplifiers 26.

Therefore, at least for the reasons stated above, the Applicant respectfully requests that claim 40 be allowed.

Based on at least the foregoing, the Applicant believes that the Office Action's rejection of the claims 1-2, 4, 6-12, 14-15, 17, 19-25, 27-28, 30, 32-38, and 40 have been overcome and respectfully requests that the rejection be withdrawn for these claims. The Applicant respectfully reserves the right to argue additional reasons that support the allowability of these claims should that need arise in the future.

### CONCLUSION

Based on at least the foregoing, Applicant believes that the claims 1-2, 4, 6-12, 14-15, 17, 19-25, 27-28, 30, 32-38, and 40 are in condition for allowance. If the Examiner disagrees, Applicant respectfully requests a phone interview, and requests that the Examiner telephone the undersigned at 312-775-8000.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously requested.

Respectfully submitted,

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